

REMARKS

Applicant has filed the present Response in reply to the outstanding Final Official Action of December 27, 2005, and Applicant believes the Response to be fully responsive to the Official Action for the reasons set forth below in greater detail.

Claims 1-31 are pending in this application and Claims 7-26 are allowed. Claim 6 has allowable subject matter and would be allowed if rewritten in independent form including all of the limitations of the rejected base claims and any intervening claims.

Applicant would like to note that Claims 1-3 have been amended herewith. Specifically, Claim 1 has been amended to clarify the method steps. The steps include calculating a feature quantity, a change quantity and using the calculations to discriminate between a voiced and unvoiced audio input. These steps were either expressed or inherently recited in the original claim, e.g., using feature quantity calculated from said voice signal input (i.e., calculating feature quantity) discriminated from the non-voice section for every fixed time length in the voice signal, and using a long-time average of change quantities obtained by inputting the change quantities (i.e., calculating change quantities from feature quantities and discriminating using the calculation). Accordingly, Applicant submits that the above amendment is not new matter or a new issue requiring a new search. Furthermore, Applicant submits that the above identified amendments either places the claims in condition for allowance or in better condition for appeal. Specifically, Applicant believes that Claim 1 is allowable over all of the cited references. Claims 2 and 3 have been amended to correspond with the amendments to Claim 1.

In the outstanding Final Official Action, the Examiner maintained the rejection of Claims 1-5 and 27-31. Applicant respectfully disagrees with the rejection and traverses with at least the

following analysis. Applicant believes that the Examiner is misinterpreting the reference and misunderstanding the claim language. The element of changing quantities and a long-term average thereof are not taught by the reference.

The reference discloses that the data is sampled, 128 samples constitute one frame. The m th ($m=1,2, \dots, 128$) sample in the first frame is denoted as $X(1,m)$.

The absolute value of each sample value is calculated. Then the short-term average and long term average is calculated. Specifically, the reference states:

The short-term average circuit 4 calculates a short-term weighted average value $xst(n,m)$ and receives the absolute value $x1(n,m)$ of the proceeded frame. On the other hand, the long-term averaging circuit 5 calculates a long-term weighted average value $xlng(n,m)$ and receives the absolute value $x1(n,m)$ of the preceding frame....Also, these circuits can be provided by adapting a calculator or filter to calculate a 'smoothing average' instead of a mathematical average, that is, a weighted average calculated after each sample input, which tends to provide a smoother output than would be provided if the current sample were weighted heavily in relation to the prior samples or previous calculated average, i.e. it tends to smooth out short term changes. In equations (3) and (4) below, the short-term weighted average value $xst(n,m)$ and the long-term weighted average value $xlng(n,m)$ are calculated by such a calculation of 'smoothing average,' (by what is hereinafter referred to as a 'smoothing calculation.

$$xst(n,m)=a*xst(n,m-1)+(1-a)*x1(n,m) \quad (3)$$

$$xlmg(n,m)=b*xlng(n,m-1)+(1-.beta.)*x1(n,m) \quad (4)$$

See Col. 3, line 54-Col. 4, line 11.

$X1(n,m)$ is not a **change quantities**, obtained by inputting the change quantities that correspond to the **variation in time of the feature quantity, but, in fact, is a feature quantity.**

Additionally, the reference teaches taking multiple differences between the short-term weighted average and the long-term weighted average. See equations 5, 6, 7 and 8.

Neither $\text{dif}(n,m)$, $\text{dif2}(n,m)$, $\text{difl3}(n,m)$ nor $\text{diflpo}(n,m)$ is the claimed long-time average of **change quantities** obtained by inputting the change quantities, which correspond to the **variation in time of the feature quantity**.

Further, the absolute value of $X(n,m)$ is not a change quantity. In addressing our prior response, the Examiner contends that J1 is a change quantity. Applicant respectfully disagrees. First, J1 is not a change quantity calculated from the feature quantity.

The reference teaches that the value J1 is related to the change of the noise level and the changes of the short term weighted average value and the long-term weighted average value and is the smoothing value of the noise level. The J1 value is not the same as the value calculated and used in the claimed invention. J1 is calculated using equation 8 which is a function of diff3 .

Specifically, the reference states:

The adders 6 and 7, the absolute value calculator 11 and the smoothing filter 8 serve to provide a changeable offset to the long-term weighted average value. The adder 9 subtracts the long-term weighted average value $x_{\text{lng}}(n,m)$ of the long-term averaging circuit 5 from the smoothing value $\text{diflpo}(n,m)$ output by the smoothing filter 8 determines the first noise discriminate threshold value J1 as indicated by equation (9), and outputs a signal representing the values J1 to the noise level discriminator 10.
Col. 5:23-31.

Clearly, J1 is not the claimed change quantity.

Second, *pro arguendo*, even if J1 was the claimed change quantity, the reference does not teach taking a long-time average of J1 or discriminating the voice based upon the long-time average of J1. At best, the reference teaches discriminating voice based upon J1, not the long-time average of J1.

Specifically, the reference states “the discriminator 10 then discriminates which of the following conditions 1 or 2 is satisfied, based on the first and the second noise discrimination values J1 and J2, and outputs the resulting discrimination signal to the noise level identifier 12.”

Accordingly, Applicant submits that the reference fails to teach, suggest or render obvious each and every limitation of Claim 1 and, therefore, the claim is patentably distinct from the cited reference.

With regard to Claim 2, in addition to being patentably distinct based upon its dependency from Claim 1, Applicant submits that Claim 2 is patentably distinct from the reference for at least the following additional reasons. The reference fails to teach that the change quantity is calculated from the long-time average and the feature quantity.

Claims 3-5 are patentable based upon their dependency from Claim 1.

The Examiner also rejected Claims 27-31 under 35 U.S.C. § 102(b) as being anticipated by DeJaco. Applicant respectfully disagrees with the rejection and traverses with at least the following analysis.

Similarly, DeJaco does not teach calculating change quantities and long-time average thereof. DeJaco discloses that frame energy differential element 10 receives the speech samples $s(n)$ of the present frame and computes the energy of the speech signal in the present frame in accordance with equation 9. See Col. 9, line 23-30. The energy of the present frame is compared to an average energy of previous frames E_{ave} using equation 10.

The factor alpha determines the range of frames that are relevant in the computation. Frame energy differential element 10 then generates the parameter ED in accordance with equation 11. Accordingly, equation 9 is used to calculate feature quantities. Equation 10 is used

to calculate a long-term average of the feature quantities and not the change quantities, as claimed.

Accordingly, the reference fails to teach calculating change quantities and long-time average thereof. Thus, the reference fails to teach, suggest or render obvious each and every limitation of the claims and, therefore, independent Claims 27-30 are patentably distinct from the cited reference.

Claim 31 is patentable based upon its dependency from Claim 1.

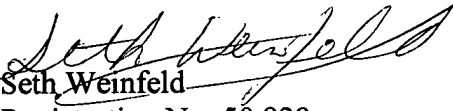
Lastly, Applicant disagrees with the Examiner's assessment of the title of the invention. Applicant believes that the title is descriptive. In Applicant's previous response, Applicant provided a title that is descriptive of the invention, "VOICE DETECTING METHOD AND APPARATUS USING A LONG-TIME AVERAGE OF THE TIME VARIATION OF SPEECH FEATURES, AND MEDIUM THEREOF". Applicant believes that this title is descriptive of the invention which is a voice detecting method and does not want to limit the scope of the invention further. However, Applicant does recognize that the title of the invention is within completely providence of the Examiner. MPEP §606.01

Based upon the foregoing, Applicant respectfully requests that the Examiner withdraw the rejection of Claims 1-5, and 27-31 pursuant to 35 U.S.C. § 102(e) and the rejection of Claims 27-31 pursuant to 35 U.S.C. § 102(b).

In conclusion, the Applicant believes that the above-identified application is in condition for allowance and henceforth respectfully solicits the Examiner to allow the application. If the Examiner believes a telephone conference might expedite the allowance of this application, the

Applicant respectfully requests that the Examiner call the undersigned, Applicant's attorney, at the following telephone number: (516) 742-4343.

Respectfully submitted,


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